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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,094	09/30/2003	Tomasz J. Nowicki	BLD920030011US1 (IRA-10-5	4772

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EXAMINER	
TABATABAI, ABOLFAZL	
ART UNIT	**PAPER NUMBER**
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/675,094	NOWICKI ET AL.	
	Examiner	Art Unit	
	Abolfazl Tabatabai	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5,15,19,22 and 29* is/are rejected.

7)☒ Claim(s) *2-4,6-14,16-18,20,21,23-28,30 and 31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/30/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.
>
> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).
>
> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

2. **Claim 29-31** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows.

3. **Claim 29** recites "An article of manufacture comprising a computer usable medium having a computer readable program embodied in said medium, " embodying functional descriptive material. However, the claim does not define a computer-readable

medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV).. That is, the scope of the presently claimed " a computer usable medium having a computer readable program embodied in said medium " (line 1 of claim 29) can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The Examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

4. The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in Sec. 101.
>
> ... a signal does not fall within one of the four statutory classes of Sec. 101.
>
> ... signal claims are ineligible for patent protection because they do not fall within any of the four statutory classes of Sec. 101.

5. Claims 29-31are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 29 define an article of manufacture comprising a computer usable medium having a computer readable program embodied in said medium with descriptive material. While "functional

descriptive material" may be claimed as a statutory product (i.e., a "manufacture") when embodied on a tangible computer readable medium, a carrier 490 described on page 15, of specification embodying that same functional descriptive material is neither a process nor a product (i.e., a tangible "thing") and therefore does not fall within one of the four statutory classes of § 101. Rather, "signal" is a form of energy, in the absence of any physical structure or tangible material.

6. Claims 15-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Since the system recited in claim 15 may be a software (specification, page 11, line 18), the same 35 U.S.C.101 rejection set forth in the office action for claim 29 is applicable to claim 15.

7. The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Section IV.C, reads as follows:

> While abstract ideas, natural phenomena, and laws of nature are not eligible for patenting, methods and products employing abstract ideas, natural phenomena, and laws of nature to perform a real-world function may well be. In evaluating whether a claim meets the requirements of section 101, the claim must be considered as a whole to determine whether it is for a particular application of an abstract idea, natural phenomenon, or law of nature, rather than for the abstract idea, natural phenomenon, or law of nature itself.
>
> For claims including such excluded subject matter to be eligible, the claim must be for a practical application of the abstract idea, law of nature, or natural phenomenon. Diehr, 450 U.S. at 187, 209 USPQ at 8 ("application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection."); Benson, 409 U.S. at 71, 175 USPQ at 676 (rejecting formula claim because it "has no substantial practical application").
>
> To satisfy section 101 requirements, the claim must be for a practical application of the Sec. 101 judicial exception, which can be identified in various ways:
>
> > The claimed invention "transforms" an article or physical object to a different state or thing.
> >
> > The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

8. Claims 1-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 1, recites the mere

manipulation of data or an abstract idea, or merely solves a mathematical problem without a limitation to a practical application. A practical application exists if the *result* of the claimed invention is "useful, concrete and tangible" (with the emphasis on "result")(Guidelines, section IV.C.2.b). A "useful" result is one that satisfies the utility requirement of section 101, a "concrete" result is one that is "repeatable" or "predictable", and a "tangible" result is one that is "real", or "real-world", as opposed to "abstract" (Guidelines, section IV.C.2.b)). Claim 1, merely manipulates data without ever producing a useful, concrete and tangible result comprising providing transform coefficient data; and scaling data represented by the transform coefficient data in the transform domain by application of a combined matrix to said transform coefficient data.

In order to for the claimed product to produce a "useful, concrete and tangible" result, recitation of one or more of the following elements is suggested:

- The manipulation of data that represents a physical object or activity transformed from outside the computer.
- A physical transformations outside the computer, for example in the form of pre or post computer processing activity.
- A direct recitation of a practical application.

Applicant is also advised to provide a written explanation of how and why the claimed invention (either as currently recited or as amended) produces a useful, concrete and tangible result.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 5, 15, 19, 22 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Schwartz et al (U. S. 6,058,215).

Regarding claim 1, Schwartz discloses a method for efficient scaling in the transform domain when transform coefficient data is provided as an input to a data processing system, comprising the steps of: providing transform coefficient data (please note, to column 4, lines 32-37); and scaling data represented by the transform coefficient data in the transform domain by application of a combined matrix to said transform coefficient data [please note, Tables 11 and 12 which shows the scale factor matrices for the 8x8 efficient reversible Allen Parameterized Transform (APT) and the " almost efficient " version. APT coefficients may be used in a lossy compression system such as JPEG in the same manner as regular APT coefficients. A JPEG quantization matrix is chosen. Each quantizer is divided by the corresponding APT scale factor, resulting a new combined quantizer and scale factor. The APT and the combined quantization and scale factor matrix are used as a replacement for the DCT and quantization in JPEG (column 29, lines 15-24)].

Regarding claim 5, Schwartz discloses the method of claim 1, whereby the step of scaling the data by application of a combined matrix further comprises the step of the combined matrix operating to scale simultaneously in two-dimensions

[Implementation of scaling transform coefficient data by using scale factor matrices as shown on Tables 11 and 12 inherently scale the data simultaneously in two-dimensions (rows and columns)].

Regarding claim 15, Schwartz discloses a data processing system (please note, to column 3, lines 44-58) for efficient scaling in the transform domain when transform coefficient data is provided as an input, comprising: transform coefficient data (please note, to column 4, lines 32-37); and a combined matrix means for scaling data represented by the transform coefficient data in the transform domain by application of said means to said transform coefficient data [please note, Tables 11 and 12 which shows the scale factor matrices for the 8x8 efficient reversible Allen Parameterized Transform (APT) and the " almost efficient " version. APT coefficients may be used in a lossy compression system such as JPEG in the same manner as regular APT coefficients. A JPEG quantization matrix is chosen. Each quantizer is divided by the corresponding APT scale factor, resulting a new combined quantizer and scale factor. The APT and the combined quantization and scale factor matrix are used as a replacement for the DCT and quantization in JPEG (column 29, lines 15-24)].

Regarding claim 19, Schwartz discloses The data processing system of claim 15, wherein by the combined matrix is configured to scale the data simultaneously in two-dimensions [Implementation of scaling transform coefficient data by using scale factor matrices as shown on tables 11 and 12 inherently scale the data simultaneously in two-dimensions (rows and columns)].

Regarding claim 22, Schwartz discloses the data processing system of claim 15,

further comprising a cost function means configured to select the scaling term g according to a predetermined cost function (please note, to column 29, lines 25-27 and column 30, lines 57-65).

Regarding claim 29, Schwartz discloses an article of manufacture comprising a computer usable medium having a computer readable program embodied in said medium, wherein the computer readable program, when executed on a computer, causes the computer to scale data represented by transform coefficient data in the transform domain by application of a combined matrix to said transform coefficient data[please note, Tables 11 and 12 which shows the scale factor matrices for the 8x8 efficient reversible Allen Parameterized Transform (APT) and the " almost efficient " version. APT coefficients may be used in a lossy compression system such as JPEG in the same manner as regular APT coefficients. A JPEG quantization matrix is chosen. Each quantizer is divided by the corresponding APT scale factor, resulting a new combined quantizer and scale factor. The APT and the combined quantization and scale factor matrix are used as a replacement for the DCT and quantization in JPEG (column 29, lines 15-24)].

Allowable Subject Matter

11. Claims 2-4, 6-14,16-18, 20, 21, 23-28, 30 and 31 are objected to as being dependent upon to overcome 35 USC 101 rejection set forth in the office action and a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other Prior Art

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Change et al (U. S. 6,215,909 B1) disclose method and system for improved digital video data processing using 4-point discrete cosine transforms.

Feig et al (U. S. 6,002,809) disclose digital image processor for image scaling.

Sakamoto (U. S. 6,092,920) discloses method for arranging pixels to facilitated compression/extension of image data.

Sunshine et al (U. S. 5,774,598) disclose system and method for sample rate conversion of an image using discrete cosine transforms.

Hoogenboom et al (U. S. 5,345,408) discloses inverse discrete cosine Transform processor.

Feig et al (U. S. 5,572,236) disclose digital image processor for color compression.

Contact Information

13. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to ABOLFAZL TABATABAI whose telephone number is (571) 272-7458.

The Examiner can normally be reached on Monday through Friday from 9:30 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mehta Bhavesh M, can be reached at (571) 272-7453. The fax phone number for organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abolfazl Tabatabai

Patent Examiner

Technology Division 2624

February 16, 2007

A- Tabatabai